Wind Turbines

Kit contains:

- 1 Straw, cut in half
- 4 Square post-it notes
- 4 Rectangular post-it notes
- 1 Square of scrap paper
- 2 Toothpicks
- 1 Lump of sticky tack

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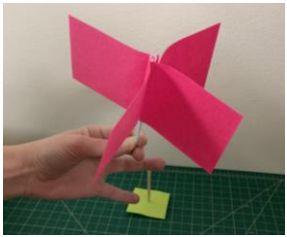
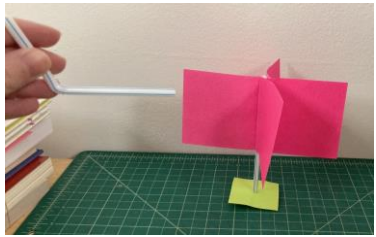
INSTRUCTIONS

Step 1. Roll your lump of sticky tack into a ball. Stand your toothpicks upright in the ball.

Step 2. Push your square of scrap paper down over the toothpicks to cover the sticky tack. (This will keep your wind turbine from getting stuck.)

Step 3. Stick your square post-it notes to the straight half of the straw at regular intervals. Slide your straw over the toothpicks. It should move freely.





Blow through the bendy half of the straw to make your turbine spin.

TIME TO EXPERIMENT!

1. What happens if you swap out your large post-it notes with the small ones?
2. What happens if you change the number of blades?
3. What happens if you change the shape of the blades? (You can cut the post-its with scissors.)
4. Which arrangement of blades made your turbine work the best?

How Do Wind Turbines Work?

Wind blows against the blades of a wind turbine, making the blades spin. The blades are connected to one end of a shaft that rotates with the blades. The other end of the shaft is connected to a gear box. These gears are connected to another shaft and the gears cause this second shaft to rotate faster than the blades and the first shaft. This second, faster shaft is connected to a generator. As the second shaft rotates inside the generator, electricity is produced.

There are two basic types of wind turbines: horizontal-axis wind turbines (HAWT) and vertical-axis wind turbines (VAWT). The blades of a HAWT rotate around a horizontal axis, like the blades of a box fan. The blades of a VAWT rotate around a vertical axis, like the blades of a ceiling fan. You built a VAWT!

(Source: starnetlibraries.org)